

Cross-Cutting Management Issues

Construction Costs Trends

WSDOT prepares its construction cost estimates using historical information about market conditions drawn from recent bids. Like other state transportation departments, WSDOT must extrapolate for the future based on past records, not from a crystal ball of future market conditions. WSDOT accumulates construction cost information and calculates a Construction Cost Index (CCI). The CCI is then compared against the experience of other states. WSDOT's CCI is a composite of unit price information from low bids on seven of the most commonly used construction materials. These items reflect a composite cost for a completed item of work and include the costs of labor, equipment, and materials. (For more information, see the September 2005 *Gray Notebook*, p. 45).

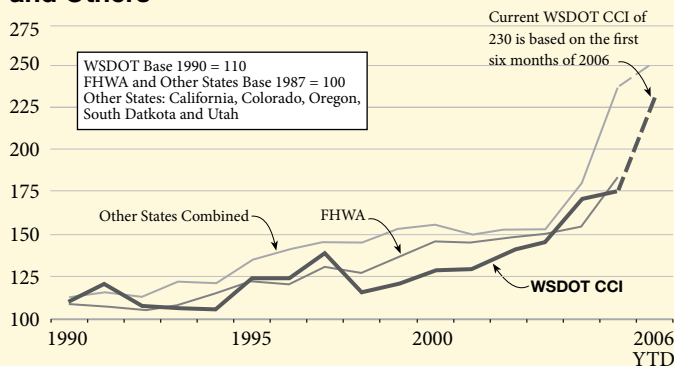
The graph below presents the past 16 years of CCI data for Washington State. This is plotted against the CCI of the Federal Highway Administration (FHWA) and a line representing the combined CCIs of several nearby western states: California, Colorado, Oregon, South Dakota and Utah.

The average annual growth rate of the CCI from 1990 through 2001 was 1.5% per year. However, since 2001, the average growth rate has been 12% per year. During this period the CCI has been driven up by several factors, including: the increasing worldwide demand for construction materials; rising crude oil prices and other energy supply issues; and recent increases in national and international construction activity.

Construction Cost Index is up 31% over 2005

WSDOT's CCI has increased 31% in the first two quarters of 2006 over the annual average for 2005, from 176 to 230. Most of this increase occurred in the first quarter (see the March 2006 *Gray Notebook*, p. 33). Of the seven materials WSDOT tracks in the CCI, Hot Mix Asphalt (HMA) comprises almost half the weight of the index. HMA costs rose 33% in the first two quarters of 2006 (see page 32).

Construction Cost Indices Washington State and Others



Sources: WSDOT Construction Office, Federal Highway Administration (FHWA)
Note: WSDOT 2006 Index is for Quarters 1 & 2; Other States 2006 Index based on California, Colorado and Oregon First Quarter Data; FHWA, South Dakota and Utah 2006 Data not available
Note: 2003 and 2004 CCI data points adjusted to correct for spiking bid prices on structural steel

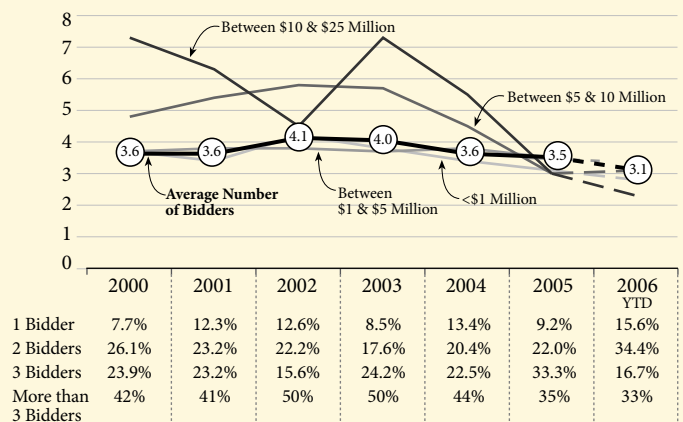
50% of Projects Have Three or More Bidders, 50% Have Two or Fewer

WSDOT's goal is to have three or more bidders for each highway construction project. However, large public and private construction programs in Washington, as well as at the national level, are contributing to a trend of fewer contractors submitting bids for WSDOT projects. This reduction in bidding competition is a sign that contractors have a full load of workload ahead of them; unfortunately, it will tend to produce less higher prices for WSDOT projects.

The average number of contractors bidding on each WSDOT project decreased 11% in the first two quarters of 2006, from an average of 3.5 bidders in 2005 to an average of 3.1 bidders in the first two quarters of 2006. The percentage of WSDOT projects with three or more bidders decreased from 69% in 2005 to 50% in the first two quarters of 2006. The percentage of WSDOT projects with three bidders decreased 48% in the first two quarters of 2006, from 33% in 2005 to 17%, while the number with one or two bidders has increased in that time. For information about how WSDOT can influence the highway construction market in Washington State, and factors that are outside of WSDOT's control, see the December 31, 2005 *Gray Notebook* (p. 29).

Average Number of Bidders

By Size of Contract



Source: WSDOT Construction Office

The following components (weighted as shown) are used to compute the CCI:

Hot Mix Asphalt (48.5%)	Structural Steel (6.9%)
Structural Concrete (17.4%)	Steel Reinforcing Bar (5.4%)
Roadway Excavation (10.7%)	Concrete Pavement (3.2%)
Crushed Surfacing (7.9%)	

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Oil Prices Influence Construction Costs

Hot Mix Asphalt (HMA) prices typically follow a similar pattern to the price of crude oil and diesel fuel. Historically, WSDOT's experience is that asphalt suppliers' strategic management of their liquid asphalt and fuel purchases has worked to buffer the cost of HMA from the peaks and valleys of crude oil and diesel prices. This is done through bulk purchasing contracts and long term purchase agreements between the oil suppliers and paving contractors. This relationship has helped WSDOT "weather the storm" throughout many of the increases noted in the past. Increases can be seen in the first quarter of 2003, and in the steady trend from late 2004 throughout 2005, in the graph to the right.

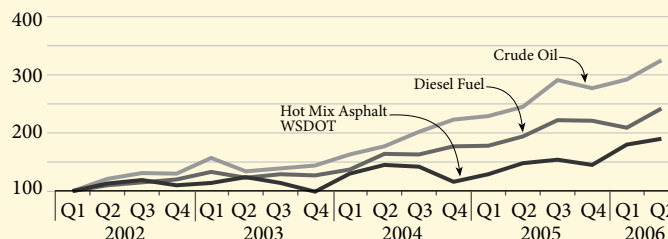
WSDOT regularly graphs projected and awarded HMA use to help paving contractors and HMA suppliers better manage their requirements (see the March 31, 2006 *Gray Notebook*, p. 32).

WSDOT is carefully watching two industry trends in crude oil and diesel fuel that could drive up construction costs. Currently, market experts are warning that paving contractors are beginning to lose their ability to lock in long term price agreements with HMA suppliers and may ultimately wind up paying the "day of delivery market price". This will significantly impact a contractor's ability to manage the cost risk associated with HMA. Further, with the high demand for the lighter end fuels, refineries are making business decisions to invest hundreds of millions of dollars in refinery modification, known as "catalytic crackers". This allows them to further refine the heavier end of the crude oils into more lucrative fuels rather than liquid asphalt. This may increase demand pressure relative to supply for liquid asphalt.

The relationship between HMA and crude oil prices is significant as virtually every activity necessary to produce and place a ton of HMA is highly dependent on petroleum products, including diesel fuel as well as liquid asphalt. Mining, crushing, hauling, stockpiling, and drying the aggregates require fuel. Liquid asphalt used as a binder for HMA is derived from crude oil. Finally, the hauling of the mix to the site and the work to lay down and compact the asphalt also require petroleum products.

WSDOT is working with the industry, as well as DOTs in other states, to develop and implement escalation clauses that would transfer much of the risk of petroleum price uncertainty from the contractor to the state. This is being pursued because WSDOT believes that contractors are beginning to lose their ability to manage this risk in the face of rising prices and the previously mentioned industry trends.

Hot Mix Asphalt, Crude Oil, and Diesel Fuel Indices



BASE 2002 Q1 = 100

Source: Hot Mix Asphalt, WSDOT Construction Office

Diesel Fuel, U.S. Dept. of Energy - Energy Information Administration, West Coast No. 2

Crude Oil, U.S. Dept. of Energy - Energy Information Administration - West Texas Intermediate

Labor Construction Costs will Rise in 2006-07

Labor costs contribute roughly 40% to contractor costs for the delivery of a typical WSDOT highway construction project. In the recent past, labor contract negotiations have been relatively flat, with respect to wages, leaving the negotiations to center around the benefits package. However, the contractor industry expects significant upward cost pressure on labor costs: wages, healthcare and retirement will all be major issues in the next rounds of trade union negotiations.

Hourly salary rates, pensions, and benefit costs are generally established by reference to collective bargaining agreements between contractors and the unions. The contractor's trade association (AGC) orchestrates the effort of contract negotiation for the five major labor groups on a regional basis. Agreements between contractors and the unions on the east side of the state are set to expire this year and are currently under negotiation; the agreements on the west side of the state expire next year.

In today's booming construction market, the potential for labor shortages is high, and construction contractors are potentially facing a "premium charge" (in addition to the labor agreement renegotiations) just to attract and retain a qualified workforce. Significant salary and benefit increases are also being seen at the private engineering consulting firms engaged by WSDOT for outsourced design and consulting.

Currently, there is no systematic tool available to WSDOT to predict the exact magnitude of forthcoming inflationary cost pressures arising from collective bargaining for construction trades or consultant services. WSDOT will observe as these new agreements unfold.